Results of Double Star Measures with the 8-inch Equatorial at Windsor, New South Wales, in 1902.

By John Tebbutt.

	ght 5.	4	٠ -	+ %	۰ ۲	, ,		, ,	י כ	t ,	4	4	ω <i>-</i>	t 4		+ 0	ı u	י זיי
	Weight 1 to 5.	×			~_ ≽	×			M		<b>.</b>	 <b>M</b>	- ≱	: ≱	A	: ≱	: ≱	
	Hour- angles.	р п 3 <b>19</b>			3 32	0	C.				1 43	1 45	4		41	30	7 4	‡
	Ħ ŝu	8 ₽ 74	49 W		4 W	39 W	13 W			•		M 6	I S W		I2 W	M I	•	
		면 2	01		B	H	(1	0	8	- ۱	4	H	"		"	, 4		
	Eyes.	4	Ч	ı	Ъ	ద	ద	¥	æ	i A	4	Ъ	R	갭	잼	д	Д	ద
	Mag. Power.	300	300	230)	300	300	300	300	30		956	2 2	300	$\left\{\begin{array}{c}535\\200\end{array}\right\}$	300	300	300	300
	No. of Obs.	0	9-01	01	01	10-3	10-8	01	10	10-7	8 01	}	2 2	01	OI	8	10	2
	Distance.	" 1.28	2.16	:	:	7.37	7.95	2.68	2.68	8.26	8.27	· :	:	8.53	8.38	:	7.43	3.62
	Position- angle.	° 20.1	19.4	9.02	9.81	222.3	222.4	222.4	522.6	84.6	84.4	85.0	0.28	86.4	87.3	338.4	2.402	102.4
	Fraction of Year.	060.	.093	ioi.	IOI.	.047	640.	.082	.085	104	201.	<b>L</b> 01.	. 194	194	.203	194	.203	.200
. Place	tar. 2. Dec. S.		ï	,,		56 42		"	"	40 42	:	2	æ	ï	. 6	29. 23	37 55	24 52
Approx	of Star. 1902. R.A. Dec. 8	р ш 1 г.7	"	:	î	1.9E 1	"	"	:	2 54.5				, <b>&amp;</b>	•	3 7.9	3 45.0	2 17.7
	Observed Mags.	:	:	:	:	:	:	:	:	4½, 5	:	:	:	:	4, 5	5, 9	5½, 5¾	$6, 7\frac{1}{2}$
	Star.	β Phœnicis	"	6	\$ :	p Eridani		*	"	$\theta$ Eridani	•		6	£	£	12 Eridani	f Eridani	h 3752
	Ref. No.	-	6	က	4	Ŋ	9	7	∞	6	10	11	12	13	14	15	-	17

Mr. Tebbutt, Double Star Measures

LXIV. 1,

Nov.	1903	3.	(	at '	Wi	nds	or,	N.	S.	Wa	iles	, ir	ı 1	902					į	59
Weight 1 to 5.	<b>6</b>	4	4	4	4	4	3	3	4	3	3	33	63	8	8	4		B	<u>.</u>	3
	ь m 0 33 Е	3 31 W		4 18 W		3 53 W	3 55 W		2 17 王	2 26 E	2 21 E	3 40 E	I 52 ⊞	2 30 臣	2 19 臣	3 3 臣	4 IE	3 58 E	2 43 E	2
Hour- angles.	h m I I E	2 56 W		3 33 W		3 29 W	3 25 W	I 37 E	2 42 E	2 50 E	2 47 E	4 11 E	2 17 E	3 14 E	2 44 E	3 26 E	4 19 E	4 22 E	2 18 E	)
Eyes.	ద	<b>1</b> 2	P)	<u>~</u>	P)	Д	23	띰	23	84	ĸ	Д	Ъ	Д	Ы	Д	Ъ	Ъ	<b>E</b>	<u>R</u>
Mag. Power.	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	230	300
No. of Obs.	10	10	01	IO	8	8-01	10	OI	10-6	IO-8	10	01	OI	8-01	9-01	10-8	9-01	10-7	01	7
Distance.	; <b>:</b>	2.13	:	:	16.1	1.87	:	:	13.26	13.63	:	:	:	2.62	2.70	2.34	1.93	2.27	:	2.01
Position- angle.	° 41.8	45.3	43.1	42.6	:	41.7	42.6	224.0	300.1	300.8	295.2	6.891	343.0	344.1	201.1	208.5	208.4	508.6	130.5	:
Fraction of Year.	131	862.	ю£.	.301	ю£.	315	.350	.146	OII.	, II2	.140	121.	131	137	131	.145	151.	·153	.153	.153
Place ar.	Dec. S. 48 27	,,		ŝ		:	•	30 SI	70 20	:	40 41	54 21	52 21	33	48 34		"		64 37	:
Approx. Place of Star.	R.A. I h m 6 2:2	"				"		6 41.8	9.6 4	:	8 18.7	8 42.0	8 53.4		9 30.2			:	9 44.7	:
Observed Mags.	$6\frac{1}{3}$ , $7$	$7,7^{1}_{2}$	:	:	:	:	:	6, 83	5, 7	$5, 6\frac{1}{2}$	73, 73	4,8	:	5,8	$5, 5\frac{1}{2}$	6,63	53,6	6, 63	3, 73	**
Star.	Lacaille 2145	?		•				h 3891	$\gamma$ Piscis Vol.		h 4087	8 Argûs	H Velorum		h 4220				v Argûs	66
Ref. No.	18	61			22	23	42	25	56	27	28	29	30	31	32	33	34	33.	36	37

60				<b>I</b>	[r.	Te	bbi	$\iota tt$ ,	$D_0$	oub	le l	Sta	r 1	<b>I</b> eo	ısu	res		•	LX	IV.	I,
Weight I to 5.		, "	n	က	4	4	က	4	33	69	çr	•	B	B	4	4	4	3	4	2	8
	ь н Д	י ר		五 12 区	I 27 E	3 36 E	2 15 压	3 35 臣	3 4 臣	3 12 K	الم الم	3	1 31 E	:	2 32 E	3 26 E	3 46 E	o 35 E	2 36 压	2 36 E	2 16 E
Hour- angles.	h m 4.28 E	-	म <b>१</b> ।	2 43 E	1 52 压	4 7 E	2 50 E	4 10 E	3 32 压	3 37 E	A 30 E	3	1 50 E	3 47 E	3 5 臣	4 3E	4 14 E	1 17 圧	3 19 臣	3 19 臣	2 39 臣
Eyes.	ρâ	; ρ	đ	Д	Д	ద	R	ద	4	· <b>&amp;</b>	æ	<u>a</u> ,	ч	Ч	ы	Н	ద	ద	24	<b>64</b>	<b>F</b>
Mag. Fower.	30		<u>§</u>	140	140	230	140	140	300	300	300	300	140	140	300	300	535	535	300	535	300
No. of Obs.	1		10-0	1-01	10-7	10-6	10-7	8-01	9-01	01	10-8	10	8-1	8-3	•10	10-7	10	01	10	OI	01
Distance.	, , , , , , , , , , , , , , , , , , ,	14.	5.32	12.46	8.94	4.16	32.16	32.27	2.63	:	5.62	:	8.27	88.6	1.80	3.00	4.60	4.87	2.12	4.68	4.68
Position- angle.	0101	1 / 21	126.8	124.3	210.1	2,2,2	83.8	84.0	66.3	6.49	0.59	6.59	343.5	345.0	351.7	351.9	117.3	118.4	1.611	0.811	119.3
Fraction of Year.		707	841.	.153	.153	791.	137	841.	841.	681.	261.	261.	153	791.	841.	192	.370	.372	.452	.452	.460
. Place ar.	Dec. 5.	04 37	:	64 40	68 43	83 36	53 13	"	48 54	2	:	:	40 55	2	33 22		62 33		2	:	6
Approx. Place of Star.	R.A.	9 44.7	"	9 45.4	9 53.1	10 10.3	9.42 01	\$	10 42.5		:	:	IO 44'5	\$	11 48.0		2.12		"	:	
Observed Mags.	, i	4, 7	4, 7	$8, 8\frac{1}{4}$	7,84	8,81	8,8	∞ ∞	4 <sup>1</sup> / <sub>2</sub> , 8	•	$4^{\frac{1}{2}}$ , 8	4 <sup>1</sup> / <sub>3</sub> , 8	6,6	8,0	5, 53	:	:	;	:	:	:
Ster.	•	v Argüs	*	h 4252	Lacaille 4102	h 4310	; 5 h 4329		μ Argûs	) <b>;</b>	: <b>:</b>	: :	h 4373	)	β Hydræ	• :	a Crucis	•	: :	: :	1
Ref.	ď	38	39	40	41	. 42	43	44	. 4 7	46	47	48	. 40	. Ç	, <del>[</del>	, <u>r</u>	, r.	, <b>7</b> ,	, <sub>7</sub> ,	32	57

Nov.	1903	3.		ai	t N	/in	dso	r, $I$	۷.۵	i. 1	Va	les,	in	19	02					6τ
Weight 1 to 5.	4	32	32	35	3	ĸ	'n	'n	n	'n	4	4	r		4	'n	4	က	4	4
Hour- Wangles.	<sup>ь т</sup> 1 59 Е	1 55 E	I 41 E	I 50 E	3 8E	3 IE	3 31 E	2 45 E	2 3 臣	1 51 E	1 17 E	3 26 E	2 IE		व १	1 8 E	I 16 E	:	I 24 E	1 36 E
H H H	ь m 2 26 E	2 19 E	2 9 压	2 ISE	3 29 压	3 24 E	3 45 E	3 II E	2 26 压	2 15 臣	I 43 E	3 47 E	2 26 E		0 4 1	1 35 E	1 48 E	1 39 E	1 50 E	2 3 E
Буев.	Д	<u>.</u>	д	д	Ъ	Д	<u></u>	4	д	Д	Ъ	Ъ	Ъ	B	B	Ъ	ద	ద	8	24
Mag. Power.	300	300	300	300	535	535	535	300	300	535	300	535	300	300	300	300	300	300	300	300
No. of Obs.	10	10	IO	01	10	01	10	OI	<b>0</b>	IO	01	9-01	IO	01	01	10	01	10	10	01
Distance.	22,1	1.95	1.87	1.93	96.1	99.1	1.84	16.1	1.95	5.00	1.84	6.04	6.15	:	2.66	41.9	1.55	1.95	1.71	1 78
Position- angle.	355.9	354.1	354.4	354.2	354.3	355.I	355.3	355.3	355.1	354.0	355.3	147.7	149.3	150.5	:	148.7	343.0	341.7	342.4	345.9
Fraction of Year.	.320	.320	356	.367	.386	.400	.403	.405	.435	.441	.449	.370	.370	.372	.372	.375	.320	.356	.320	.386
Approx. Place of Star. 1902. R.A. Dec. S.	48 25		•		2	*	:	:	,			o 55	:	:	"	"	67 34	:	*	\$6
Approx of Si R.A.	р m 12 36 г	*	"	*	:	,,		66	11	2	"	12 36.7			,	2	12 40.3	\$		"
Observed Mags.	:	4,4	4,4	:	:	:	:	:	. <b>:</b>	:	:	:	:	:	;	:	:	4,4	5, 5	4,4
Star.	γ Centauri	6.6	•	•	•	•	•		•	•	•	$\gamma$ Virginis	:	•	•	66	$oldsymbol{eta}$ Muscæ		66	11
Ref. No.	55	59	9	19	62	63	64	65	99	49	89	69	70	71	72	73	74	75	92	77

62			Λ	Ir.	Te	bbi	$\iota tt,$	$D_{i}$	oub	le i	Sta	r I	Iea	sui	res			LX	IV.	ı,
Weight 1 to 5.		5	 4	4	4	4	က	4	4	n	'n	81	•	4-	4	4	4	ر ر	<del></del>	- 2
Hour- W.	h m 124 E		14 14 I	I 4 E	:	2 8 压	2 0 压	I 35 E	2 3 臣	I 46 E	1 35 E	3 33 W	W				. oc c		W 90 1	
HC	ь п 1 52 Е		ر ا	1 36 E	2 6E	2 35 王	2 29 压	2 23 E	2 35 压	2 13 臣	2 10 E	3 14 W		4 39 1			3 34 4			3 21 W
Eyes.	ద	F)	Б	ద	д	д	Ъ	Ъ	ద	Ъ	Ъ	R	P)	P)	P	- A	<u>A</u>	$\mathbf{P}$	R	$\mathbf{P}$
Mag. Power.	300	535	535	300	300	300	300	300	300	140	300	140	300	535	300	535	535	535	300	535
No. of Obs.	10	01	JO	10	9-01	10-7	IO.	10	10	9-01	IO	01	10	10	10	10-2	10	IO	10	10
Distance.	1,80	:	1.55	99.1	5.48	2.86	8.35	8.49	1.60	14.96	64.6	:	59.12	96.12	:	22.24	22.14	:	22.03	21.83
Position- angle.	344.9	342.5	:	342.6	8.481	187.2	109.3	0.011	3.06	6.92	1.291	212.0	211.4	211.3	211.0	211.3	:	0.112	9.112	510.6
Fraction of Year.	.397	.403	.403	.405	.370	.372	.361	.386	.403	.320	.403	.044	<b>261</b> .	761.	194	.194	194	194	<i>1</i> 61.	461.
Approx. Place of Star.	67 34		ť		64 47		32 30		35 11	55 33	58 г	92 09	ž	:	, \$	:	:	2		,,
Appropriate Approp	h m 12 40'3		,,	:	13 1.8		13 46.2	£	13 47.8	13 50.8	14 15.6	14 32.9	6		"		66	2		6
Observed Mags.	4, 4	:	:	:	$5, 7\frac{1}{2}$	$5,7^{\frac{1}{2}}$	5, 6	$5\frac{1}{2}$ , 7	9,9	$7\frac{1}{2}$ , 8	5, 7	:	:	:	:	:	:	:	:	• :
Star.	β Muscæ	\$	ç		heta Muscæ	,,	k Centauri	:	y Centauri	Lacaille 5750	Lacaille 5893	a Centauri	*	2	"	*	,,	•	<b>.</b>	°
Ref.	78					83				87	88	89			92			95		46

1101.	190	٠.		·	,	,, ,,	wo	υ,	<b>T</b> 4 •	ν.	,, u	000	, ,,,		<i>9</i> 02	•				U
Weight 1 to 5.	'n	5	<b>-</b> ^	'n	τ	4	Ŋ	4	B	4	4	33	•	4	33	3	က	33	61	3
	ь m 5 о W		\$ 0	4 11 W	4 30 W	4 56 W	5 9 W	:	4 34 W	4 51 W	5 29 W	5 40 W		5 39 W	3 47 压	3 36 E	4 24 E	3 50 E	3 29 E	3 22 E
Hour- angles.	ь m 4 I4W		4 44 4	3 47 W	4 11 W	4 30 W	4 56 W	5 11 W	4 22 W	4 38 W	5 8 W	5 29 W		4 55 4 v	4 18 E	4 I3 E	4 40 压	4 18 E	3 56 臣	3 48 臣
Eyes.	ద	E G	P	R	Ъ	д	д	д	д	д	Н	Н	$\stackrel{P}{\longrightarrow}$	P	Ъ	Ъ	23	Ь	Ъ	Ы
Mag. Power.	300	535	535	300	535	170	170	170	170	300	535	300	300	535	300	300	300	300	300	300
No. of Obs.	IO	OI	IO	10	10	OI	10	OI	10	10	10	01	10	10	10	9-01	∞	10	10	OI
Distance.	21.56	:	96.17	21.58	22.15	21.93	21.12	21.22	99.17	21.59	22.24	:	06.12	22.14	22.10	21.85	<b>:</b>	21.94	22.03	22.10
Position- angle.	2112	211.8	:	9.112	510.6	:	:	:	;	;	1.112	211.5	510.6	2.112	0.112	2.11.2	211.2	2.11.2	211.4	211.3
Fraction of Year.	.200	.300	.500	.205	.205	502.	.205	502.	<i>L</i> 22.	<i>L</i> 22.	<i>L</i> 22.	122.	142.	.241	.225	.252	.257	.263	99z.	89z.
. Place sar.	60 26		č			"		:		:			2		,,	"	"		:	
	h m 14 32'9		"	2		•	"	"			"		•	"		"	"	"		
Observed Mags.	፧	•	:	÷	:	:	;	:	:	:	:	:	:	:	1, 2	:	:	:	:	:
Star.	α Centauri	*	:	:	•	:		:	•		:	ř.	"	,,	,,	"		,,	,	•
Ref. No.	, 86,	66	8 :	IOI	102	103	104	ios	901	101	108	109	OIT	III	112	113	114	115	911	111

64				I	Ir.	T	ebl	out	t, L	ou	ble	Ste	$\alpha r$ .	Мe	ası	ıres	3		L	XIV	<b>7.</b> I
Weight 1 to 5.	•	+	က	4	4	- ~	ر د د	٠ ·	4	4	_	۲	33	64	, 6	ο <i>α</i>	۱ ،	, د	, u	, ,	0 K
	р m 2.20 E	)	3 27 E	4 20 E		3 52 E		3 49 E		2 59 E	2 56 E	,	3 0 臣	0 35 W	41	10	21	1		5 -	28
Hour- angles.	р гон гон	,	3 54 E	4 51 E	ł	4 21 K		4 12 E		3 30 臣	3 23 臣	•	3 33 E	0 15 W	z 1 28 W	30	្ឋ	7	20	7 9	12
Eyes.	Д	ι ρ	ч	Ъ	P).	₽Š	<u> </u>	ıρ	ì Â	<u>P</u>	Ч	P)	$\mathbf{P}^{igg brace}$	ద	24	Д	굨	굨	24	24	. 4
Mag. Power.	30	5 6	3	535	300	300	300	300	300	535	535	300	535	170	170	170	170	170	170	170	170
No. of Obs.	OI	2	2	10	10	10	01	9	01	01	01	10	OI	10	01	10	01	01	01	01	01
Distance.	22.06	22.10		21.78	:	21.79	:	22.01	:	21.88	21.63	:	21.78	21.68	21.57	21.88	21.47	21.31	21.24	21.49	21.22
Position- angle.	212.0	211.4	+ ·	9.112	211.3	:	2.112	:	211.1	211.2	0.112	211.0	:	:	:	:	:	:	:	:	:
Fraction of Year.	274	282.		.400 0	. 446	.449	.460	.460	.476	.476	.479	.487	.487	.674	949.	.685	.685	069.	ю2.	.704	414.
. Place car. 22. Dec. S.	6° 26	:	:	"	"	:	:	:	"	:	;			**	;	•			:	÷	•
Approx. Place of Star. 1902. R.A. Dec. S	n m 14 32'9			"		:	ť	^	,,	"	•	:	,,	í							£
Observed Mags.	· •	:		:	:	:	•	:	:	:	:	•	•	:	:	:	:	፥	:	:	:
Star.	a Centauri			•	:	:	*	•	66	τ.			2	"		•			66	"	•
Bef. No.	811	611	120		121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137

Nov.	1903	;		at	Wi	nds	sor,	N	S.	W	ales	i, $i$	n 1	90:	2.				(	65
Weight 1 to 5.	33	3	4	3	4	4	ıΩ	E	4	4	•	+	•	4	4	~ ~	4	ις	4	ιΩ
Hour- Vangles.	ь m 3 26 W	2 3 W	2 49 W	3 12 W	2 31 W	2 52 W	3 8 W	3 24 W	2 35 W	2 49 W	1 46 E	<b>+</b>		ى 4	о л Е	n	2 11 E	2 33 E	2 9E	2 51 E
B. H.	и <b>ч</b>	I 46 W	:	3 o W	2 17 W	2 38 W	2 54 W	3 8 W	2 22 W	2 35 W	, ,	4		2 2/ 5	ر بر	2	2 44 E	3 17 E	2 32 E	3 18 E
Eyes.	R	æ	æ	ద	R	R	24	R	ਅ	R	F)	ъ	Ð	P)	$\stackrel{\bf P}{\longrightarrow}$	P)	д	Ъ	Ъ	22
Mag. Power.	170	170	170	170	170	170	170	170	170	170	300	140	300	140	300	300	300	300	300	300
No. of Obs.	∞	IO	10	OI	10	01	OI	01	10	01	10	9	10	9	10	10	10-2	OI	OI	01
Distance.	2165	21.40	21.45	21.50	21.47	21.56	21.22	21.54	21.56	21.56	:	16.39	:	15.81	:	9.14	80.5	8.63	:	99.1
Position- angle.	• <b>:</b>	:	•	:	:	:	:	:	:	:	236.8	:	237.7	:	0.621	:	131.3	130.8	318.8	2.98
Fraction of Year.	414.	.720	.720	.720	.728	.728	.728	.728	731	124.	.320	.320	298.	.367	.365	365.	.405	.408	.408	.367
Approx. Place of Star.	bec. s. 60 26		"		"	•	:	*	*		64 33	,,	:		25 2	*	"	. "	27 16	46 40
Approx of S	K.A. h m 14 32'9		\$	ï	£		ç		"	£	14 34.6	:	"	*	14 40.3	"			14 52.9	14 58.5
Observed Mags.	:	:	:	:	:	:	:	:	:	:	. <b>⊗</b> . ℃	3,8	4,8	4, 8	$5, 6\frac{1}{2}$	5, 61	:	ۍر 8	$6\frac{1}{2}, 6\frac{1}{2}$	
Star.	α Centauri	•	ŝ		ŗ	:	,,	,	:	÷	a Circini	. 3	:	,	m Hydræ	\$	:	:	$_{59}$ Hydræ	π Lupi
Ref.	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	921	157

00				14	•	<b>4</b> 0	,,,,	000	, .	,,,,	woi	,	300	<i>u</i> .	11L C	ws	wı	es			T	ıΔl	. <b>V .</b>	1,
Weight r to 5.	٠ ,	<b>.</b>	^ 4	v	,	Ŋ	4	v	) i	ς.	7	۲	4		<b>+ •</b>	4	4	Ŋ	4	٠,	<b>†</b> 1	<b>ئ</b>	B	м
	h m	2 9 臣		1 33 E	3	1 38 E	2 56 压	3 41 E		7	2 27 E	•	2 23 压	2 I E	1 1		137年	2 22 E	2 22 E	1 52 五	, א	1 0 C	3 21 E	3 22 E
Hour-	n n	2 30 E		2 4 臣		2 ISE	3 25 E	4 8 E	2 AT E	+	2 56 压	)	2 49 E	2 15 压			日 0 7	2 46 E	2 46 E	2 23 E	, 5	Ç	3 49 E	3 56 E
Eyes.	Ó	4 P	à É	<u>-</u> -	स्र ।	4	Ъ	Ъ	Д.	ıρ	<u> </u>	F)	В	R	24	i P	ч ,	껔	പ	Ъ	Д	ı F	ч	Д
Mag. Power.	ξ	3 6	3 6	305	535	300	300	300	300	5 6	3	140	300	300	30	, ,	3	300	140	300	300		3	300
No. of Obs.	ב	2 5	2 5	2 4	0-01	2	01	10	01	2	י נ	5	OI	10	01	2	) (	10	01	10	01	8	0	IO
Distance.	* :	1.1	, ,		2.10	04 /2	1.75	68.1	5.00	<b>'</b>	94.CC	43.10	1.04	:	09.I	08.1	2	1.39	:	2.47	2.58	2.62	C ·	2.25
Position- angle.	87.4	· :	84.0	87.2	7.77	+ ++-	1503	155.1	155.6	130.8	<b>s</b> :		1.0¢	81.8	28.8	1.62	2.94.2	70/7	172.5	358.1	359.0	2.932	) i	1537
Fraction of Year.	.375	375	.408	.408	302.		340	.386	44I	.340	.340	, <b>1</b>	/as	.375	.386	.441	.440	£ :	449	.340	.326	375		397
r. Place ar. 2. Dec. S.	46 40		:	: :	48 22	17	4/ 31		"	"	:	, X,	50 50	:	"		44 20		44 04 44	44 38	£	:	8 29	
Approx. Place of Star. 1902.  R.A. Dec. S.	h m 14 58·5	ű	*		15 5.1	15 11:4	/ ** C*	ť	•	ï	:	16 15.6	0 61 61	£	:	•	15 16.0	16.0	004 64	15 29.0	ĸ		15 38.0	, y
Observed Mags.	5, 5	5, 5	5, 5	5, 5	43,6	v v	n ı î ı	က်းက	5, 5	5, 7	5, 7	Ϋ́, Ϋ́,	ָרְיָּרְיִּרְּ	ດ ີ ດີ	5, 54	$5, 5\frac{1}{2}$	5,8	182 5. 7	, 1 , 1	5, 7	5\$, 7\$	η, ∞	63.64	7
Star.	# Lupi		"	"	162 K Lupi 4½, 6	μ Lupi	١ :	<b>.</b>	: : :	Dunlop 180	•	$\gamma$ Circini		•	•	•	e Lupi	ELupi & Dunlop	d Lumi	idne s	,,		Lacaille 6477	
Ref. No.	158	159	160	191	162	163	164	165	Ç.,	166	191	168	169	1 1	2	171	172	173	177	† ;	17.5	176	177	

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Weight 1 to 5.	v	4	, nu	4		က	~	3	4		n	4	ıΩ	4	Ŋ	Ŋ	4	3	32
	h m I SI E	1 59 E	1 38 E	3 6E	,	五 9 7		2 35 E	2 8 E	2 6 压	2 35 压	2 8 压	2 28 E	2 8 压	2 25 E	2 12 E	2 26 E	2 52 E	2 26 E
Hour- angles.	ь m 2 16 Е	2 32 E	2 6 臣	3 31 E		2 52 E		3 24 E	2 36 E	2 52 E	3 24 E	2 36 E	2 56 压	2 35 臣	3 3 E	2 39 压	2 52 E	3 15 E	2 48 E
Eyes.	ద	84	<u></u>	д	P	Ð	P)	Ē	д	R	R	R	Ъ	д	Н	Ъ	<u>~</u>	껆	R
Mag. Power.	300	300	300	300	535	300	300	300	300	300	300	300	300	300	300	300	300	300	300
No. of Obs.	01	IO	01	10-5	ıΩ	OI	10	IO	10	10	IO	IO	10	01	10	IO	10	IO	10-7
Distance.	3,08	3.17	2.62	15.12	:	:	÷	:	:	:	:	:	3.70	3.80	4.46	4.76	4.98	;	2.83
Position- angle.	277.7	5.942	275.5	20.8	7.5	6.01	8.5	4.6	6.0	46.6	514	20.5	355.0	356.3	192.4	8.161	190.8	83.6	84.4
Fraction of Year.	.449	.476	.487	.326	.400	.400	.427	.427	.452	.400	.427	.452	.394	.427	.394	.427	.452	.441	.449
. Place ar. 2. Dec. S.	2°°2°		:	38 7	19 12	:	÷	*		19 12		•	23 13	**	26 27		â	46 32	"
Approx. Place of Star. 1902. R.A. Dec. 8	h m 15 47.7	:		15 53.6	16 6.3	;	"	"	**	16 6.3	"		2.61 91	£	17 9.3	"	*	9.11 21	:
Observed Mags.	5, 8	5, 8	5, 8	5,8	4, 6	4,6	$5\frac{1}{2}$ , 7	$5\frac{1}{2}$ , 7	$5, 6\frac{1}{2}$	$7\frac{1}{2}$ , $7\frac{3}{4}$	7, 73	$6\frac{1}{2}, 7$	$5, 5\frac{1}{4}$	:	5, 5	$5\frac{1}{2}, 5\frac{1}{2}$	9,9	$6, 8\frac{1}{2}$	$5\frac{1}{5}$ , $9$
Star.	A Scorpii	•	•	η Lupi	$\nu$ Scorpii	"	66	9,9	•	Jacob 9	•	**	ρ Ophiuchi	:	A Ophiuchi	66	•	Lacaille 7194	ŕ
Ref. No.	178	179		181	182	183	184	185	186	187	188			161		193		195	

00			TAT	T, .	Lec	ou	υ,	$D_0$	wo	ie k	ou	TY.	Lea	swr	es			LХ	IV.	1,
Weight 1 to 5.	4	3	4	4	3	4	4	က	33	ιV	ν	ιΛ	Ŋ	4		B	אט	4	ιΩ	70
	8	五 52 元	3 8E	1 55 E	2 22 臣	I 59 E	1 55 E	3 IE	I 40 E	2 38 E	2 43 E	1 13 E	3 21 E		3 12 E	3 35 E	3 OE	3 6 E	3 3 E	3 33 E
Hour- angles.	<b>a</b> `	2 56 E	3 42 E	2 26 压	3 7 臣	2 29 压	2 22 压	3 36 E	2 7 E	3 6压	3 9E	1 44 E	3 48 E	į	3 47 E	4 3 E	3 25 E	3 38 E	3 27 臣	4 2 E
Eyes.	$\mathbb{R}$	R)	ద	24	R	괊	R	Ъ	굨	R		Zi	д	Ā	$P^{igg(}$	Ь	Ъ	Д	4	д
Mag. Power.	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
No. of Obs.	01	7	OI	10	IO	IO	IO	IO	10-5	IO	OI	10	IO	IO	10	10	10	, OI	OI .	01
Distance,	:	2.24	2.54	5.16	2.50	5.26	:	2.23	5.26	5.63	5.76	2.07	1.87	:	2.04	2.55	2.24	2.50	2.45	2.13
Position- angle.	85.0	:	2.18	8.18	83.6	288.7	289.7	0.162	1.162	286.2	262.2	242.6	136.1	135.6	:	136.3	136.4	135.2	133.3	136.3
Fraction of Year.	.476	.476	.485	.487	.493	.479	.485	.490	.493	964.	.485	644.	.394	.427	.427	.476	.479	.485	.487	964.
Approx. Place of Star. 1902. B.A. Dec. S.	, 46 32	£	ς.		,	34 53	"	,	2	•	45 45	43 26	37 12				ŗ	,,	,	
Approx. E of Star 1902. B.A.	и и 17 и 6		,,	•	£	17 12.2	ţ		,	"	9.61 41	17 59.7	18 59.8	*	:	:	:	"	"	
Observed Mags.	$5\frac{1}{2}$ , $8\frac{1}{2}$														5, 5	$5\frac{1}{2}, 5\frac{1}{2}$	5, 5	$5\frac{1}{2}, 5\frac{1}{2}$	5, 5	5, 5
Star.	Lacaille 7194	•	" 661	,,	,	β 416	•	,,	,,	•	h 4949	h 5014	$\gamma$ Coronæ Aust.	£		•		:	, "	"
Ref. No.		198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216

## Remark

105, 106, 107, 130, 131, 132, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, measures with the Grubb distance filar micrometer. 121, 122, 128, 129, 141, measures partly in sunlight and partly in twilight. 156, components just separated, distance less than 1". 166, 167, the position-angle is referred to the mean of  $\mu$  Lupi. 173, Innes' Catalogue makes the companion = 10 mag. 175, a minute companion suspected midway between the components, but a little west of the line joining them. 182, 183, measures difficult, estimated distance = 1". 184, 185, distance about 1". 188, distance about 2". 195, principal component reddish and rather blurred, distance about 3". 196, 199, 200, companion hazy. 205, 206, a companion about  $8\frac{1}{2}$  or 9 mag. south, and following at a distance 157, 158, 159, 160, 161, 163, 164, 165, 177, 192, 193, 194, 208, 209, 210, 211, 212, 213, 214, 215, 216, components equal. 16, north component probably the brighter. 17, principal component yellow, companion blue. 18, hazy and ill-defined. 19, preceding and south component the brighter. 20, 21, 22, 23, nearly equal. 26, 27, 36, 37, 38, 39, principal component orange and companion blue. 29, 31, observations very difficult. 36, 37, 38, 39, erroneously called h 4252 in Innes' Reference Catalogue. 40, not in the Reference Catalogue. ponent orange, companion greenish. 49, south component the brighter. 51, a neat and beautiful pair. 74, 190, following and south component the brighter. 79, 80, south component certainly slightly the brighter. 82, principal component white, companion blue. 103, 104, 53, 55, 56, 57, 54, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 123, 130, 131, 132, 135, 136, 137, 138, 139, 140, 142, 143, 144, 145, 146, 147, measures in sunlight. 1, 2, 3, 4, 5, 6, 7, 8, 59, 60, 65, 66, 71, 72, 75, 77, 78, 86, 156, 13, 44, principal component white and companion reddish. 45, principal component yellow, companion pale green. 47, 48, principal com-1, 2 3, 4, 5, 6, 7, 8, 9, 10, 11, 25, 26, 27, 34, 35, 38, 39, 62, 63, 65, 66, 67, 69, 79, 80, 120, 124, 125, 126, 127, 133, measures in twilight

by Herschel and Pollock. Brisbane 3574 = Innes, No. 22, 11h, was woolly and could not be seen double. On May 5 I examined  $\theta$  Centauri = No. 2, 14h of Innes' Catalogue, but could find no trace of a companion. On March 7 I attempted to observe  $\gamma$  Carinc = Innes' No. 6, 11h, but the definition was not good enough to enable me to distinguish the companion measured here in 1901, nor could I see the companion = 10 mag. recorded

All the measures, except where otherwise stated, have been made with the Cooke position and distance filar micrometer. The arrangement of the preceding table is similar to that adopted in former communications.

Observatory, Peninsula, Windsor, N.S. Wales: 1903 August.